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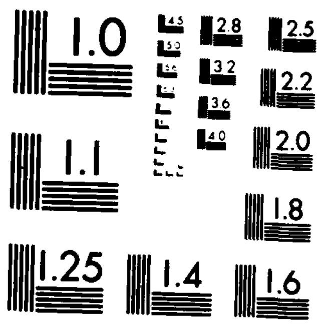

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HEALTH CARE STUDIES DIVISION REPORT #82-005

PHYSICIAN PRODUCTIVITY IN CLINIC SETTINGS

by

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Final Report

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Study was assigned as part of the AMEDD Study Program, FY 82. An extensive literature review was accomplished to include critiquing and summarizing of numerous articles. Examples of productivity measurement methods are described from randomly selected articles. The summary of each article includes the unit of measurement and method used. The effectiveness of the type of measuring method used is also addressed. Although no completely satisfactory measurement method exists because of limitations that must be considered such as: patient mix, office arrangement, rural area versus metropolitan area, nature of illness,

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etc, the cited examples described in this report show time and motion measurement as the most widely used method. Study results reveal a definite need for the development of a well-defined collection methodology for use by OTSG and which, as recommended, should encompass the following elements: (1) frequency with which various tasks are performed, (2) numbers and types of examinations, (3) frequency of diagnostic categories, (4) diagnosis and procedures by provider/clinic, and (5) aggregate procedural data.

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1. INTRODUCTION.

a. Problem. There is a need to evaluate various configurations of offices and staff within outpatient clinics and measure the productivity associated with each.

b. Purpose. To determine what techniques are being used for measurement of physician productivity.

2. OBJECTIVES.

a. To identify techniques of productivity measurement being used by various offices and staff with emphasis on outpatient clinics.

b. To assess the effectiveness of the techniques.

3. METHODOLOGY.

a. Data Collection. A literature search was conducted using the following sources: Defense Documentation Center for Scientific and Technical Information (DDC), the Defense Logistics Studies Information Exchange (DLSIE), the AMEDD Study Program, MEDLARS II, and the U.S. Department of Health and Human Services.

b. Analysis of Data. An extensive literature review was accomplished to include critiquing and summarizing numerous articles.

4. DISCUSSION.

a. Productivity is defined in terms of "outputs" resulting from given "inputs." Common inputs include such factors as manpower and capital equipment, while outputs have generally taken the form of a number of patient encounters during a specific period. Quality of care is normally not addressed in this approach. A number of factors affect physician productivity:

(1) practice size.

(2) practice arrangement.

(3) demographics.

(4) incentives to practice.

(5) legislation and licensure.

(6) reimbursement methods.

(7) extent to which personnel and technology substitute or complement certain practices.

The literature suggests that small group practices are more productive than either solo or large group practices. Some estimates put the optimal practice size at five to seven physicians for maximum utilization of space, equipment, and personnel. Mendenhall (1978) discovered that firms employing over 100

physicians had the lowest workload per physician. He found little effect by specialty on productivity; the significant factor was practice size.

b. Physicians have two avenues for increasing productivity and thus potentially augment their practices: (1) the use of ancillary personnel and (2) technological devices (computers, automated analysis). In determining the evolving role of nurse practitioners and physician assistants, such factors as laws, customs, costs, fees, available supply, training, patient acceptance and physician acceptance must be addressed. There have been numerous studies done regarding the use of nurse practitioners and physician assistants as a means of increasing productivity of physicians. Mendenhall et al (1980) describe the research design, survey instrument, and methodology employed to assess the utilization and productivity of nurse practitioners and physician assistants in primary care settings. The survey instrument was a self-administered log/diary in which data were recorded, almost exclusively by numeric code. The instrument consisted of three parts with a total of six sections which were tiered and color-coded for easy reference; detailed data were recorded for a randomly selected three-day period. Part I of the survey instrument was a one-page summary sheet on which was recorded the number of patient encounters and the number of professional hours for each day of the week (Sunday thru Saturday). Part II elicited detailed data regarding practitioners' activities for a three-day period randomly assigned so that data from the entire sample represented six days. Part III was a questionnaire that solicited data on: the practice background, education, professional preparation for services provided, history of employment, primary practice location and reaction to the survey instrument. A matched group of comparison practices was subject to the same eligibility criteria except they did not employ nurse practitioners or physician assistants. Interpretation of the data clearly indicated that physician assistants are considerably more productive than nurse practitioners, and although nurse practitioners spent more time with individual patients, the cause of the differential in productivity was not revealed.

c. The analysis of physician productivity in the provision of health care delivery is an important planning factor. The inability of physicians to estimate accurately their own activity by means of personal recollection, as demonstrated by Nelson et al (1975), underscores the importance of the need for objectivity in the measurement of physician activity and has led researchers to depend on data collection methods. Nelson developed two data collection instruments: (1) an observer check list, and (2) a task inventory list. Both contained the same amount of task statements (n = 139). Trained observers followed and observed 13 primary care physicians for one week in the office. They recorded the frequency and duration of a task performed on the observer check list. At the end of the week, each physician completed the task inventory list indicating how often they performed the tasks and how long it took to perform the task. Observer and physician's respective sets of data were analyzed to determine the degree of agreement. On 89 occasions, the observer reported that a task was performed; however, the physician reported it was not performed. On 420 other occasions, the physician indicated a task was performed; the observer reported it was not performed. Therefore, physicians and observers do not even agree on whether or not a task took place, let alone the number of times it took place. The major source of disagreement would appear to be the tendency of role incumbents to overestimate how often a task is performed and

how long it takes to perform it. Some physicians overestimate both the frequency and duration of tasks relative to the observer. The tendency to inflate is not common to all physicians; some distorted to a marked degree, others were in very close agreement with the observer. The results of the study showed that agreement was not sufficient between task data obtained by the two different methods to conclude that one can substitute for the other. Validity of the task inventory method is not supported by the results of the study.

d. There are a variety of methods used in measuring productivity as well as different concepts of "productivity" (see Heins et al, 1976). Following are examples of measuring methods. In addition, Table 1 defines specific techniques used in measuring productivity and addresses their effectiveness.

(1) Lindenmuth et al (1978) discussed a study that took place in Washington, DC, which compared the productivity of two physicians in terms of number of patients seen and the time spent seeing them with and without third-year clinical clerks. Eight students were assigned to a team for each of two eight-week clerkships. The team consisted of two internists, two nurse practitioners, one primary care resident, two nursing assistants, one secretary-receptionist; the team was responsible for a panel of 4,000 patients. One or two students worked on the team at any given time. The role of the students varied from merely observing to seeing patients themselves, and presenting their findings and a plan to the physician. During the first half of each clerkship, physician 1 worked with the students; physician 2 did not. In the second half, it was reversed; each physician served as his own control. The physician kept a log of: (1) the length of each clinical session (seven 3.5 hour sessions per week with a minimum of two 45 minute periodic physical examinations and five 15 minute follow-up visits), and (2) the number of patients seen during the session. Comparisons were made of the mean number of patients seen per session and showed a range of 23 to 27 patients seen with the physician and medical student, and 15 to 21 patients seen with the physician alone. Students significantly increased the number of patients seen in three of four periods of observation. There was no significant difference in the length of a session with or without students. Patients were given a questionnaire to report anonymously on their care. They were asked to check whether they had been seen by the physician alone or by a medical student with the physician, and report their satisfaction/dissatisfaction with the care provided. During the study period 3,136 patients were seen by the team and 1,090 (35%) of the questionnaires were returned; there was no significant increase in the rate of dissatisfaction if students were involved in the patient's care.

(2) Wirth et al (1977) used two methods of time and motion study: continuous observation (CO) and work sampling (WS) to measure physician behavior. The study attempted to determine whether differences occurred because of the method used. The CO method requires the constant presence of an observer and allows for detailed recording of time spent in direct patient care time. The WS method involves recording multiple randomized instant observations of an individual's activities by observers located in remote areas. The study was conducted in a prepaid group practice setting, the Medical Care Group of Washington University, and examined the delivery of primary care by 17 internists and pediatricians at two times (spring 1974 and spring 1975). For both years, a two-week WS study during work hours was followed by approximately 26 hours

(five to seven half-days) of CO study of each physician. Categories of professional activities to be measured were: direct patient time (history taking, physical examination procedures, direct contact with patient or patient's family), paperwork and telephone (relating to patients), conversing with staff (including consulting), and miscellaneous professional (waiting time, travel, correspondence, and paperwork not related to patients and nonspecific professional activity). The WS team recorded instant observations of activities described above and whereabouts of individuals at coordinated random intervals; 1,100 observations of each fulltime physician were obtained at the rate of approximately 12 observations per hour. An aggregate of 655 hours of professional and non-professional physician activity was observed (approximately 80 hours) by the WS method. During the CO method, a single observer used a triple stopwatch study board to record to the hundredth minute the sequential activities of the physician. Sick visit time (time utilized by physician seeing patient) was chosen as the basic unit of professional activity. Method effects on physician behavior were determined in two ways: comparisons were made through a difference of means tests for: (1) each physician's mean minutes/patient sick visit as determined by CO and WS, and (2) each physician's mean minutes/activity/half-day. Mean minutes/patient sick visit showed a range of: 5.06 to 7.78 minutes/patient for each pediatrician and a range of 8.20 to 17.71 minutes/patient for each internist when measured by the CO method. The WS method, using the same criteria, showed a range of 4.45 to 11.08 minutes/patient for pediatricians and 8.47 to 19.25 for internists. The study indicated no signficant difference in time/unit of patient service for 82% of the physicians studied, nor did the presence of a continuous observer affect the number of units of patient service/half-day of observation. Nonpatient activities showed a slightly larger number of differences although 74% of comparisons of mean activity time still showed none. Overall, the two methods showed a high degree of similarity.

(3) Holmes et al (1977) compared two methods of measuring productivity of physician teams working with and without nurse clinicians. The study was conducted in four primary care practices by the staff of the Kansas Regional Medical Program in 1974 and 1976. Data was collected in two practices before and shortly after introduction of a nurse clinician, and in two other practices that had employed nurse clinicians for two years. Two researchers timed and coded all services provided to patients by the physicians, nurse clinicians, and nurses during an eight-hour period (six data collection periods, from 9 to 15 consecutive workdays). There was variation in type of personnel employed; physicians 1 and 2 were each assisted by an office nurse and two office record keepers during the first observation period. Physician 1, in the second observation period, and physician 3 were each aided by a nurse clinician, an office nurse, and two record keeping personnel. Patient visits were classified into 15 problem categories and five types of well-care visits. Timing started when the professional arrived and continued through the day and included: conversation, history taking, physical examinations, special tests, charting treatment procedures, and counseling. Non-visit activities for patient and nonpatient included: telephone calls, reading charts, laboratory, x-ray, correspondence, writing in patient's charts, filling out insurance forms, consulting, social conversation with staff/patient and preparing equipment. Projected visits per day that could be processed at observed rates of work ranged from 33.7 to 38.3 for physician with nurse all visits and 40.5 to 42.5 for physician with nurse clinician all visits. The relative value of services provided by each professional observed during patient's visits was accomplished by applying a modified version of the Kansas Medical Society (KMS) relative value schedule where services

are expressed in points which are based upon the prevailing state median charge for identified services. Visit type was broken down into two categories: problem visits (eight types) and well-care visits (six types). Twelve general practitioners were asked to provide their estimates of relative value units not listed in the KMS. These estimates were averaged to produce the resulting dollar value for each type visit. For example, a "return visit for test information" showed a unit value of 1.09, a dollar value of 6.32, and 5.03 dollars per unit. Relative value points and equivalent dollar values assigned to services provided by professionals yielded a different assessment of productivity than that provided by a count of patient visits. The physician-nurse clinician teams studied were only six percent more productive that the physician-nurse team when productivity was measured by the number of patient visits processed during an eight-hour period, but were 26% more productive in terms of the value of services they produced per day.

(4) Daniels and Schroeder (1977) between July 1974 and June 1975, at the George Washington University Health Plan & Medical Clinic, compared variations in physicians' laboratory use (including x-ray) with both clinical productivity and outcome of care, to variations in physicians' laboratory use reported in two previous reports from the same institution. Cost of the laboratory test of 149 long-term ambulatory hypertensive patients cared for by 13 faculty internists during one year was determined by numbers of lab test, x-ray, and radioactive isotope scans ordered by each internist and performed during the study period as a result of a regular office visit by hypertensive patients. Costs were added and expressed as mean cost per patient/year for each internist and ranged from $8 to $161 (mean $54, median $50, standard deviation $42). Outcome of care was estimated using hypertension as an indicator condition. The physician was assigned a score consisting of the proportion of his hypertensive patients with blood pressures within acceptable levels at the last regularly scheduled clinic visit during the study period. Clinical productivity was compared by two methods: (1) Method A - adjusted panel size (defined as the total patient load of an internist divided by the number of his weekly scheduled clinic sessions), and (2) Method B - subjective estimates of efficiency by the clinic administrator; this estimate was quantified by having the administrator rate each internist on a scale between 0 and 100 based on three criteria: speed of practice, panel size, and average length of clinic sessions. Method A gave a range of 64 to 155 patients per session among the internists (mean 100, median 89 patients/session). Method B showed a range of 35 to 92 (mean 67, median 65 patients/session). Outcomes of care, as judged by proportion of hypertensive patients with acceptable blood pressures, compared to mean annual lab costs per patient, showed a range from 40 to 80% with a mean of 58% and a median of 69%. As with the two previous reports from this institution, the data reported here document extensive variation in laboratory use among comparably trained physicians. In addition, the data do not support a positive association between degree of laboratory use and either clinical productivity or outcome of care.

(5) An independent study of the productivity of Womack Army Hospital was conducted by Arthur Young & Company in 1976. The purpose of the project was to establish an initial basis for use in measurement and improvement of military hospital's productivity. Drafting of methodologies to be used to develop each work center's productivity index was accomplished and indices were developed for 34 work centers. Indices were developed by: (1) actual productivity ratios derived from actual hours and production data during the study, and (2) a standard productivity index was developed. Comparisons of these two values, performed by dividing

the ratio into the index, resulted in (3) an estimate of work center efficiency. The efficiency index is a measure of the relationship between the actual and recommended staffing levels of each work center. The standard hours per unit of measurement represented productive hours; they included allowances for personal, fatigue, and delay time, but no allowances for vacation, holiday, sickness, or military-related nonproductive hours. The indices were tested for reasonableness against actual Womack productivity ratios, and the actual Womack ratios were in turn compared with comparable private sector ratios. Womack actual productivity ratios were obtained by dividing service unit counts for a given time period into actual hours expended in the same time period. Preferably Womack records were utilized but in some cases special logs were developed (when the hospital did not maintain a count). Private sector productivity ratios were obtained from the June 1976 Hospital Administrative Services (Monitrend System) data published by the American Hospital Association; ratios for hospitals in the 200-299 bed size range were used. The ratios were compared with productivity ratios of five different departments at Womack. The unit of measure used was time/procedure. The comparison showed that Womack spends nine percent less hours per unit of measure overall than the private sector. Finally, recommendations for hospital productivity improvement, both at Womack and for the military hospital system, were presented.

(6) Heins et al (1976) used a 207-item questionnaire to interview 87 randomly selected women physicians in the metropolitan Detroit area (between November 1974 and March 1975) to determine if productivity of women physicians had increased over that reported in previous studies. Included in the study were female physicians who: (1) had a medical degree but were not classified as interns or residents, (2) worked within the Detroit tri-county area, and (3) were born in the United States. A total of 238 physicians were listed who fit the criteria and a random sample of 102 were selected of which 87 completed interviews were obtained. Of these, 76 were working either full-time or part-time. Trained interviewers administered the questionnaire which averaged 1 1/2 hours in length and was conducted in the physician's home. The questionnaire included: education, training, reason for entering medicine, reason for interruption of medical education (children/husband influence), present status (working/not working). A medical work ratio (MWR) which equalled full-time equated months in medical work since medical school graduation, divided by total months since medical school graduation, was used. In order to equate full-time medical work for each respondent, non-work periods were summed in the same manner as part-time. If, in one year, a physician worked full-time for six months, it was calculated as 0.5; a physician who worked half days for a full year was calculated in the same way. Total time span measured was from medical school graduation until 1975. The mean MWR score was .88, the median .99. These statistics showed that 83% of women physicians worked 75% or more of the potential time they could have worked since graduation from medical school. Statistics in previous studies showed a range of 49.1% to 44.9% (physicians working full-time since graduation from medical school) as compared to the Heins et al study which showed 59% women physicians working full-time. The results indicated that although the studies were not exactly parallel, urban female physicians were shown to be more productive now, as defined by working a greater percent of the time available, than in previous studies.

(7) Glenn and Goldman (1976) analyzed strategies (documentation of patient flow patterns) already experienced with physician extenders to examine the use of physician extenders in physicians' offices. Eight sites using physician extenders

and one site not using physician extenders (to serve as a reference point for describing alternative flow patterns) were studied in 1973 at various places in the eastern United States. In the eight sites using from one to four physician extenders per physician, three distinct patient flow patterns were observed and defined as "series" (appointments are made with the physician; patient is served by the physician even though he may also be seen by a physician extender), "parallel" (appointments are given with either a physician or physician extender with the expectation that some patients will complete their visit without direct face-to-face contact with the physician), "consultative" (appointment made with a physician extender with physician acting as a consultant), and "traditional" (appointment with physician with medical assistant preparing the patient but physician providing care). Each site was visited for three days; patient flow patterns were documented. To determine if one strategy was more productive than another, a computer simulation model was developed for one of the observed sites based upon data collected from 82 patient visits. The site represented a family practice unit seeing an average of six patients per physician hour. Data included: recognizing patient had arrived and waiting, obtaining patient's records, the complaint or reason for visit, vital signs, and laboratory specimens. Before comparing strategies, the model was first tested by comparing model results against observed productivity results at the model site under the "series" strategy of operation. After reasonable congruence in both model behavior and productivity prediction was shown to exist, sets of simulation experiments were run where other physician/physician extender strategies were imposed upon the model to illustrate in numerical terms by relative comparisons between typical configurations for the series, parallel, and consultative strategies (number of physician extenders per physician to productivity (patient visits per physician per hour)). Using the same unit of measurement (six patients per physician hour) under alternate strategies, with one physician extender, and a range of observed patient delegation rates, productivity ranged upward to a maximum of 9.5 patient visits per physician hour, an increase of 58% over the traditional pattern. The physician who employed one physician extender would gain maximum productivity from the "parallel" strategy.

(8) Holmes et al (1976) compared two solo primary care practices with similar patient populations located in Kansas (Practice I, a small Kansas town and Practice II, a suburb of Kansas City) to determine the impact of physician assistants on the productivity of office practices. Practice I employed only a nurse and Practice II employed a nurse and a nurse clinician. The study was conducted in the summer of 1974 and compared the different roles of the nurse in Practice I and the nurse clinician in Practice II and the productivity of each practice measured in terms of number of patient visits processed during a standard time period (35 patient visits per day was the most frequently reported average for primary care rural solo practitioners). Two health care researchers collected data in each practice for 12 consecutive workdays. The method involved: timing of all office activities of the physician, nurse clinician, nurse, and coding of data in predetermined categories. Timing of activities was initiated when the professional first arrived and continued throughout the day. Two distinct activities were timed for each person: (1) direct patient contact activity that occurred during patient visits, such as conversation, history taking, physical examinations, special tests, charting procedures, counseling, time spent preparing patient or consult with colleagues, and (2) other activities that took place outside of patient visits such as: telephone calls; reading charts; lab and x-ray results; correspondence; writing in patient charts; filling out insurance forms; performing lab tests; preparing equipment; and waiting for patient. The actual average times

each professional worked in the office per full workday (eight hours) were: Practice I - nurse, 9.5 hours; physician, 6.5 hours; Practice II - nurse clinician, 7.5 hours; physician, 5.8 hours. The roles of the nurse and nurse clinician were quite different. The role of the nurse clinician was similar to the role of the physician, in Practice II, whereas in Practice I, the nurse was responsible for routine nursing tasks, bookkeeping, and office maintenance. The nurse spent only 19% of her day in direct patient contact compared to 48% for the nurse clinician; 75% of the nurse's time involved a scheduled procedure and no significant evaluation of patient's problem; only 15% of the nurse clinician's time was spent in scheduled procedures. The nurse's time in patient visits alone was 2.8 minutes; the nurse clinician averaged 10.4 minutes in patient visits alone. Study results revealed that it was primarily because of the assistance received from the nurse clinician that the physician in Practice II was 12% more productive than the physician in Practice I.

e. Most studies of dental productivity discuss the use of number of patient visits as a measure of output for a dental practice. Mitry et al (1976) developed a weighted index of patient services in which dental services are defined in terms of associated procedure and assigned relative procedure units (RPU) that represent output of the dental practice. The RPU reflects the dentist's time to perform a given procedure. Marcus et al (1975) utilized the Task Analysis Dental Information System to develop a method of examining productivity through computer analysis of two factors: (1) the combination of providers performing a task and average performance time, and (2) patient needs. These core elements of task-provider interaction were interchanged among three practices representing different forms of dental care procedures. Comparisons were made on personnel cost per minute, personnel time per visit, and personnel cost per visit.

f. The summaries of the example studies described in this report show that time and motion studies have dominated the approach to examining physician productivity. The simplest measure of physician productivity is the number of patients per hour of the physician's time and is based on an important input - the physician's time. In all productivity measurement studies of primary care, there are some limitations which must be considered: patient mix, office arrangement, rural area vs metropolitan area, and nature of illness. No completely satisfactory measurement exists. From a physician's standpoint, productivity may affect income and hours worked; from the patient's standpoint, productivity may affect his/her ability to obtain an immediate appointment. Of the two methods discussed (continuous observation and work sampling), the latter is preferable and normally provides a fairly accurate picture of the observed person's activities. The continuous observer method has raised some questions regarding the influence of the observer on the behavior of the observed person. However, in the example cited (Wirth et al, 1977), the presence of a constant observer apparently did not have an effect on the physician's behavior. This method also involves extensive use of personnel time, leading to high costs. Questionnaires are frequently used for measurement of patient satisfaction with quality of care, waiting time, length of visit, etc, or physician's satisfaction with environment, availability of assistants, lab use, pharmacy use, etc. However, unless there is at least a 60% return rate of the questionnaires, the validity of this method is questionable. A low return rate may be a critical factor.

5. CONCLUSIONS. Units of measurement of productivity found were:

a. Time per physician hour.

b. Time per procedure.

c. Time or length of visit.

d. Time per month since graduation.

e. Time per productive hours.

f. Costs.

g. Practice speed.

h. Number of patients.

i. Relative value units.

6. RECOMMENDATIONS.

a. Make report available to consultants.

b. Develop a collection methodology for use by OTSG that will define the frequency with which various tasks are performed.

c. Define data elements that should be collected such as:

(1) Numbers and types of examinations performed.

(2) Aggregate procedural data.

(3) Frequencies of a diagnostic category.

(4) Diagnoses and procedures by provider/clinic.

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TABLE 1

Techniques Used in Measuring Productivity

	Unit of Measurement	Method	Effectiveness	Study
1	time (per physician hour)	on-site comparison between strategies simulation model used to compare strategies	sites tested that employed physician extenders were shown to be more productive than sites that did not employ physician extenders	Glenn & Goldman (1976)
2	time (per physician hour)	observation	physicians were shown to be more productive when with nurse clinician than physicians with nurse alone	Holmes et al (1976)
3	time (per physician hour)	observation	yielded a lower assessment of productivity than when measured by value of services	Holmes et al (1977)
4	time (length of session)	log	more patients seen when student was with physician than when seen by physician alone	Lindenmuth et al (1978)
5	time (mean min/sick visit)	work sampling and continuous ovservation	effects on physicians' behavior showed a high degree of similarity for both methods	Wirth et al (1977)
	time (per procedure)	comparison by means test (physician mean min/sick visit to mean min/activity per half-day)		

TABLE 1 (contin.)

Techniques Used in Measuring Productivity

	Unit of Measurement	Method	Effectiveness	Study
6	time (productive hours)	estimate of efficiency (actual hours worked compared to productivity index by dividing ratio into index)	Womack spent 9% less time per unit of measurement than private sector	Arthur Young & Co (1976) (Womack Army Hospital)
	time (productive hours)	records/log (dividing service counts into actual hours expended in same time period)		
	time (per procedure)	productivity ratios (private sector compared to productivity ratios of five Womack departments)		
7	patients (visit type)	estimate of relative value units (points assigned to each category of type of visit (Kansas Medical Society Relative Value Schedule giving dollar value per visit)	productivity was shown to be higher than when measured by time/physician hour	Holmes et al (1977)
8	interview	questionnaire and medical work ratio (full-time months worked divided by months since medical school graduation)	female physicians were shown to be more productive now than in previous studies	Heins et al (1976)
9	patient (satisfaction/ dissatisfaction)	questionnaire	low return rate (35%)	Lindenmuth et al (1976)

TABLE 1 (contin.)

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patients (per weekly scheduled clinic sessions)	clinical productivity (adjusted panel size)	documents extensive variation in lab use - data did not support positive association between degree of lab use and either clinical productivity or outcomes of care	Daniels and Schroeder (1977)
patients (blood pressure level)	outcomes of care (hypertensive patients per mean lab cost per patient)		
practice speed, panel size, and *length of session*	clinical productivity (estimate of efficiency)		
number of lab tests performed	cost per patient per year		

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